



Defence Research and
Development Canada

Recherche et développement
pour la défense Canada



Literature Review on Best Practices in Collective Learning

Louise Lemyre, Celine Pinsent, Colleen Johnson and Paul Boutette
Institute of Population Health, University of Ottawa

The scientific or technical validity of this Contract Report is entirely the responsibility of the Contractor and the contents do not necessarily have the approval or endorsement of Defence R&D Canada.

Defence R&D Canada – Centre for Security Science

Contract Report

DRDC CSS CR 2010- 11

November 2010

Literature Review on Best Practices in Collective Learning

Louise Lemyre, PhD, FRSC;
Celine Pinsent, PhD;
Colleen Johnson, B.A. (H.)
& Paul Boutette, M.B.A.

Dr. Lemyre is the McLaughlin Research Chair on Psychosocial Aspects of Risk and Health, Director of GAP-Santé at the Institute of Population Health, and Professor of Psychology, Faculty of Social Science, University of Ottawa. louise.lemyre@uOttawa.ca, www.gapsante.uottawa.ca.

We would like to acknowledge the intellectual contribution of Dr. Wayne Corneil, Dr. Jacques Barrette, Dr. Nancy Beaugard and Professor Gilles Paquet, as well as the continuous support over the years of the Social Science and Humanities Research Council of Canada, and that of DRDC-CRTI.

Defence R&D Canada – Centre for Security Science

Contractor Report

Abstract

This focused overview of the literature on collective learning presents definitions of collective learning along with related concepts such as collective memory, learning organizations, and communities of practice. Considerations are provided for examining collective learning within a multi-organizational context such as federal horizontal initiatives. Best practices as identified in the literature are documented. These are then transformed into potential indicators of collective learning within a multi-organization environment. This report will be useful for groups attempting to assess the extent to which collective learning has or will likely occur within initiatives involving multiple organizations working on common goals.

Résumé

Dans le présent aperçu des documents axés sur l'apprentissage collectif, définit cette expression ainsi que les concepts connexes dont la mémoire collective, les organisations apprenantes et les communautés de pratiques. On énumère des éléments à considérer au moment d'examiner l'apprentissage collectif dans un contexte multi-organisationnel, notamment les initiatives horizontales fédérales. Les pratiques exemplaires décrites dans les publications sont documentées. Elles sont ensuite transformées en indicateurs potentiels de l'apprentissage collectif dans un environnement multi-organisation. Ce rapport sera utile pour les groupes qui tentent d'évaluer dans laquelle mesure il y a ou aura un apprentissage collectif dans le cadre d'initiatives touchant de multiples organisations qui travaillent dans un seul et même but.

.

Table of Contents

Abstract..... iii

Introduction..... 5

2.0 Collective Learning: Definition, Related Concepts and Considerations 6

3.0 Best Practices in Multi-organizational Collective Learning..... 9

4.0 Potential Indicators of Multi-organizational Collective Learning 11

5.0 Summary and Conclusions 17

References..... 18

Appendix A – Search Terms and Databases..... 21

Literature Review on Best Practices in Collective Learning

Introduction

Review objective

This literature review provides an overview of key best practices in collective learning as outlined in the literature. The purpose of this review is to assist Defence R&D Canada (DRDC) Centre for Security Science (CSS) with the assessment of collective learning approaches in organizational structures that are similar and comparable to the various federal horizontal initiatives led by the CSS. As a result, this review focused on identifying best practices in organizational collective learning, and developing potential indicators for assessing the extent to which collective learning is present and/or likely to occur.

Review method and literature sources

The review incorporated literature from primarily peer-reviewed academic sources, in addition to some applied management sources. Various academic and non-academic search engines and citation databases were employed to identify potentially relevant literature. Once a potentially relevant document had been identified, the abstract or summary was reviewed to determine the extent to which it covered the specific topics of this focused review. A full listing of the relevant articles and documents used for this review is contained in the reference list. The specific search strategies, search engines, and citation databases used are outlined in Appendix A.

Challenges and limitations

As with any review, there were some challenges encountered which place limitations on the review results. The following should be considered when applying the results from this review:

- *Extensive size of literatures* – The various academic and applied literatures on collective learning and related concepts (e.g., learning organizations, knowledge mobilization, etc.) are quite extensive. Given the purpose of the present review, the emphasis was placed on identifying best practices and potential indicators rather than conducting an exhaustive review of theoretical models.
- *Broad nature of collective learning* – Most models and definitions of collective learning are necessarily broad and encompassing. As a result, there are many related and/or overlapping concepts. This makes it challenging to not only define collective learning, but also to focus exclusively on best practices in collective learning without integrating many additional concepts such as teamwork, leadership, individual skills, etc. To serve the purpose of the review, the team has

selected to broadly focus on collective learning and integrate these other concepts when appropriate.

- *Single versus multiple organizations* – The purpose of the review is to identify best practices in similar and comparable organizational structures as those used to implement federal horizontal initiatives. Much of the collective learning literature focuses on a single organization which may be less applicable. Where possible and appropriate, the team has attempted to adapt and apply the findings to a multi-organizational context.

Overview of report structure

In addition to this brief introduction, there are four main sections to the report. Section 2.0 defines collective learning, identifies key related concepts, and presents key considerations in collective learning. Section 3.0 outlines the findings from the process of identifying best practices in collective learning, particularly within a multi-organizational context. Section 4.0 presents potential indicators that could be used to assess the extent to which collective learning has or will likely occur within a multi-organizational context. Section 5.0 contains a brief summary and some broad conclusions from the review.

2.0 Collective Learning: Definition, Related Concepts and Considerations

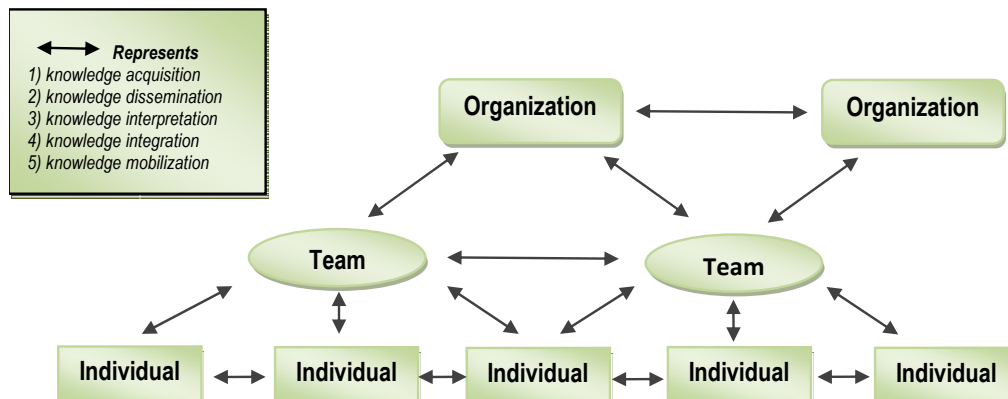
Defining collective learning

Collective learning is a broad term that encompasses a number of concepts including: learning organizations, team learning, communities of practice, and collective strategic leadership (Garavan & McCarthy, 2008). As illustrated in Figure 1, the learning takes places on an individual level before it is transferred among team members, then shared among teams, and finally shared from organization to organization (Lipshitz, Popper, & Oz, 1996). Learning takes place on the organizational level when individual learning is transferred to the collective level through working in teams (McCarthy & Garavan, 2008). This learning is not the result of the actions of a single individual but rather the combined result of group actions and discussions. Organizational learning is an emerging property of an organization (or meta-organization) that transcends and outlasts the learning of each individual.

Evidence of collective learning can be seen when accrued knowledge persists even as staff turns over (Knight, 2002). This assumes that learning occurs when members gain new knowledge or when new members who have knowledge that the organization did not previously possess are added to the organization (Simon, 1991; Cook & Yanow, 1993). Organizational learning also refers to the capacity within the organization to i) gather new knowledge, ii) retrieve prior knowledge, iii) transform knowledge, iv) analyze, v) reflect, vi) be self-critical, and vii) become creative in problem-solving while insuring of a strategy of evaluation.

Collective learning involves having *shared practices* related to: 1) knowledge acquisition, 2) knowledge dissemination, 3) knowledge interpretation, 4) knowledge integration, and 5) knowledge mobilization (i.e., knowledge turned into action) (Beauregard, Lemyre, Corneil, & Barrette, 2010).

Figure 1: Representation of Collective Learning



Concepts related to collective learning

Learning organizations

Learning organizations encourage their members to practice continuous learning (Dodgson, 1993) and find mechanisms to increase the sharing of this learning and to foster synergies. Landmark in the field of organizational learning, Argyris (1977; 1978) emphasized the importance of double loop learning rather than single loop learning for organizations. In single loop learning, the methods or processes behind production go unquestioned, but with double loop learning, the root cause of problems are always sought out so that mistakes may be learned from and prevented in the future. Of similar influence, Senge (1994) described a set of five competencies: 1) personal mastery, 2) insight into mental models, 3) shared vision, 4) team learning, and 5) systems thinking (Senge, Ross, Smith, Roberts, & Kleiner, 1994). Personal mastery refers to an individual's ability to manage their own learning. Mental models infer that a person has the ability to question mental images or representations of themselves and others. Shared vision requires the cultivation of a common goal. Team learning consists of the diffusion of knowledge from the individual level to the collective level. Systems' thinking describes the capacity to see the big picture thinking that allows one to see phenomena in the context of overall systems, to study cause-and-effect relationships rather than individual events, and to observe processes of change.

These theoretical conceptualizations of collective learning have influenced the discourse around best practices but have not yet been subjected to formal operationalization or scientific assessment. Analyzing qualitative data and quantitative data from the public sector, Beauregard, Lemyre, Corneil, and Barrette (2010) have identified a number of critical dimensions underlying the core concept of the learning organization. Three

dimensions are essential to the characterization of learning organizations: i) political (how authority relationships allow, encourage and facilitate learning), ii) semantic (how people make sense of their learning, see the relevance and how to apply it), and iii) normative (how the work climate has tolerance for creativity, innovation, experiments and mistakes) (Barrette et al., 2010).

Teams

Best practices in collective learning are often compatible with best practices in team based working environments. Open communication, empowerment and shared decision making are all linked with improved team performance (Garavan & McCarthy, 2008). Effective teams have been described as key in the development of a learning organization (McCarthy & Garavan, 2008). Teams that lack a cohesive vision or that are not accountable will have difficulty passing the learning of individuals on to the group level (Lipshitz, Popper, & Oz, 1996). Evidence from a 2009 study by van Woerkom and van Engen suggests that workplace environment has a significant impact upon team learning.

Collective memory

One concept that is frequently linked with collective learning is collective memory. Collective memory refers to the shared access to passed instances and lessons learned. It requires organizations to be able to process, store and retrieve information (Lei, Hitt, & Bettis, 1996). Collective memory operates beyond the individual level in that memories are embedded within a broader social context (Misztal, 2010). Equally important to remembering is the concept of forgetting, as deliberate omissions from the past are sometimes necessary to maintain a more unified collective identity (Connerton, 2008). Obsolete or misguided knowledge must also be forgotten, in a process of 'unlearning' if organizations are to progress beyond outdated thinking (Dodgson, 1993b).

Communities of practice

Another concept that is tied to collective learning is that of communities of practice. These groups are organized around a professional discipline, skill or practice (McDermott, 1999). Communities of practices are characterized by sustained mutual engagement, which may be either harmonious or conflictual (Cox, 2005). Communities of practice are more unstructured and informal than teams or learning organizations (Garavan & McCarthy, 2008d). It is not unusual for members within a community of practice to use shorthand communication or jargon, share inside jokes or stories, and to dispense with introductory preambles when meeting (Cox, 2005). It is not necessary for a group to be geographically co-located for a community of practice to form, though geographic co-location may be beneficial. For example, Shell Oil reorganized members into cross-functional teams by creating communities of practice that discussed important issues on a weekly basis in face-to-face meetings (McDermott, 1999). These communities of practice were operating in addition to existing teams that were organized by task, creating 'double-knit' organizational linkages. The concept of communities of practice acknowledges that working and learning are interrelated and compatible processes; however, they do not share a common joint mandate. Communities of practice also place a greater importance upon community, shared identity and shared perspective, not unlike the idealized *gemeinschaft* outlined by Tonneis (Brown & Duguid, 2001).

Critics suggest that communities of practice imply that a balance of power exists between groups in an organization when many organizations demonstrate more asymmetrical power imbalances (Halliday & Johnsson, 2010).

Considerations in understanding collective learning

Collective learning prerequisites – Studying Canadian federal public sector managers and executives, Beauregard et al. (2010) determined empirically that if collective learning is to occur, there are a number of factors that are required to be in place in organizations. These include:

- Power and authority dynamics in the organization that ensure that all organization members can access knowledge, coordinate knowledge and information, mobilize knowledge by turning knowledge into action, and exercise surveillance on the quality of information.
- There is a social or cultural norm within the organization (or between organizations) of information sharing and interpretation.
- There is both a tolerance and acceptance within the organization (or between organizations) of counter-opinions, mistakes or errors, and new ideas, creative thinking, novelty and experimental approaches.

Learning focus and knowledge source – Another consideration in understanding collective learning is the interplay between learning focus and knowledge source. As illustrated in Table 1, according to DiBella et al. (1996), organizational learning can have an incremental or transformative focus, while knowledge can be obtained either externally or internally. Depending on the combination of these two factors, the organizational learning will take on a different approach ranging from an adaptive approach (incremental/external) to a more innovative approach (transformative/internal). Depending on the strategic goals of the organization and desired outcomes, the organization is likely to emphasize some approaches more than others at different times, with ideally some balance across all four approaches.

Table 1: Learning focus by knowledge source (DiBella, Nevis, & Gould, 1996b)

		LEARNING FOCUS	
		Incremental	Transformative
KNOWLEDGE SOURCE	External	Adaptation	Acquisition
	Internal	Correction	Innovation

3.0 Best Practices in Multi-organizational Collective Learning

Given the applied nature of the literature on collective learning, there are a number of directives, suggestions and popular sources that outline approaches to enhance collective or organizational learning. For this review, the team focused on best practices that were

supported by research-based evidence (e.g., empirical studies, case studies, evaluation research), rather than only anecdotal practice-based reports.

Team-based working – Working in teams may stimulate an organization's collective learning capacity (van Woerkom & van Engen, 2009). Teams have been described as increasing adaptability, flexibility, quality consciousness, and worker satisfaction. These results have been linked to the complementary skills and experience that is brought together in a team-based working environment (Katzenbach & Smith, 1996; Katzenbach et al., 1996). Small teams have been described as being more effective, with optimum numbers ranging between ten and twenty-five members. Within a multi-organizational or multi-branch context, a key consideration would be to have teams composed from different branches and/or different organizations. For example, Shell Oil reorganized members into cross-functional teams by creating communities of practice that discussed important issues on a weekly basis in face-to-face meetings (McDermott, 1999). These communities of practice were operating in addition to existing teams that were organized by task, creating 'double-knit' organizational linkages.

Knowledge access, coordination and mobilization within a norm of reciprocity of exchange of information – An organizational environment that promotes the sharing of relevant knowledge within and between teams has the capacity to improve performance and should be fostered by leaders within the organization (Gubbins & MacCurtain, 2008). Open communication encourages both critical reflection and the sharing of knowledge among teams, improving collective memory and supporting team based working (Garavan & McCarthy, 2008). Sharing and exchanging information is more likely to lead to new ideas and divergent thinking (Ellis et al., 2003). Sharing information enhances the development of shared knowledge or cognition which can result in team mental models or shared mental models; this shared knowledge plays a key role in a learning organization (McCarthy & Garavan, 2008). A shared mental model, "...produces mutual awareness, with which team members can reason not only about their own situation, but also the status and activities of the other team members in the pursuit of joint goals (Yen, Fan, Sun, Hanratty, & Dumer, 2006)."

Promote critical reflection and tolerance of counter opinions – Creating an environment in which employees are free to think critically about processes and working structures will encourage learning at the organizational level (Gubbins & MacCurtain, 2008). This critical thinking should operate on a social level and support questioning of existing processes so that new, innovative practices may be adopted (Beauregard et al., 2010). Significantly, agreeableness has been linked with low levels of learning, since organizational members that are friendly, trusting, modest, and compliant are more likely to accept the opinions of others uncritically (Ellis et al., 2003).

Experiment and test new practices on a small scale – It is important to foster an environment that supports new ideas and encourages experimental, creative thinking (Beauregard et al., 2010). It is considered best practice to test new organizational practices and structures on a smaller scale before implementing such changes at an organizational level (Gubbins & MacCurtain, 2008). Creating decentralized subunits

designed to research and test these sorts of changes may be useful in this regard as long as these units are given sufficient authority to carry out the task. In building a learning organization it may also be useful to begin by focusing on improving what the organization already does well, and focus on larger changes as the organization's learning capacity is strengthened over time (DiBella, Nevis, & Gould, 1996)

Encourage social networking – Social networking increases the exchange and cross-pollination of ideas within and between organizations (Gubbins & MacCurtain, 2008). Interaction is a necessary component of knowledge transfer (Ellis et al., 2003). Creating opportunities for social networking to take place, is therefore an important undertaking in a learning organization. These can be more formal (e.g., meetings, training) or informal (e.g., coffee, lunch time colloquia).

Tolerating, acknowledging and accepting mistakes or failing initiatives – To create an environment where people can collectively learn, it is important that there is the toleration, acknowledgement and acceptance of mistakes or errors (Beauregard et al., 2010). Learning organizations acknowledge failing initiatives regardless of sunk costs (Gubbins & MacCurtain, 2008). Emphasis is placed on learning how and why something did not work, and then avoiding further wasted resources rather than continuing with an initiative that is clearly ineffective.

4.0 Potential Indicators of Multi-organizational Collective Learning

Based on the findings from the review of best practices in collective learning, the team developed potential indicators against which the extent to which collective learning in federal horizontal initiatives could be assessed. These are grouped according to five broad categories of: 1) knowledge acquisition and use, 2) culture, 3) support, 4) leadership and management.

Table 2: Potential Indicators for Multi-organizational Collective Learning

1) Knowledge Acquisition	
Potential indicators	Benchmark & measurement considerations
<p>1.1 There is sharing of relevant information and knowledge between: individuals, individuals and teams, between teams, teams and organizations, and between organizations</p> <ul style="list-style-type: none"> • existence of an information pool with shared access • access to some databases • compatibility of databases • interoperability of equipment 	<ul style="list-style-type: none"> • As illustrated in Figure 1, there should be evidence that information and knowledge is being shared across individuals, between individuals and teams, across teams, between teams and organizations, and across organizations. • There should be some judgement that the <i>relevant</i> information/knowledge is being shared. Relevance can be assessed according to perceptions of usefulness.
<p>1.2 New ideas are shared quickly across individuals, teams and organizations</p> <ul style="list-style-type: none"> • sharing of minutes and reports • joint briefing meetings • lateral inter-organizational contacts are allowed 	<ul style="list-style-type: none"> • The organizational environments should be one where new ideas that have potential can be presented easily and quickly to the team and other organizations. If the climate is such that new ideas need to be completely developed prior to presentation, then there is likely to be less innovation, creativity and appropriate risk-taking.
<p>1.3 Systems are in place to facilitate information and knowledge sharing. This would include:</p> <ul style="list-style-type: none"> • Informal and formal forum for presentations, discussions, etc. • Software and file formats are accessible to all members • Common repositories for key documents (e.g., intranet, portal) • Contact information/lists are maintained, up to date, and distributed widely 	<ul style="list-style-type: none"> • Some of these may be quite formal while others may be more informal. • Important to determine that reports and documents are accessible from a technical standpoint (common software, similar versions)

1) Knowledge Acquisition	
Potential indicators	Benchmark & measurement considerations
<p>1.4 Systems outlined in 1.3 are actually being accessed and used by individuals, teams and organizations.</p> <ul style="list-style-type: none"> record of use 	<ul style="list-style-type: none"> The relevance of these systems is important. If they are relevant and accessible, then it is likely that they are being used. If the systems are not being used, then there is likely less information sharing occurring and therefore likely less collective learning. Important to determine if there are alternative systems of sharing going on that may not be "official" systems but that might be working quite well (separate spreadsheets of contacts, social media sites, etc.)
<p>1.5 Information and knowledge is documented so that it can be shared at a later date and used for reflection and collective memory. This would include:</p> <ul style="list-style-type: none"> Meeting minutes Strategic documents (goals, vision, desired outcomes) Planning documents Issue identification processes such as needs assessments/environmental scans Lessons learned and evaluations 	<ul style="list-style-type: none"> As outlined previously, collective memory is an important aspect of collective learning. Part of this is achieved through ensuring that key knowledge and ideas are sufficiently documented. Documentation of knowledge and information can also assist in the process of knowledge mobilization, as information and knowledge is available and analysed in a manner that can then be "turned into action".
<p>1.6 Knowledge needs have been identified and planned for</p> <ul style="list-style-type: none"> record, report or minutes of a joint need assessment 	<ul style="list-style-type: none"> Evidence of this is usually found in documents such as needs assessments, environmental scans, performance measurement strategies, or planning documents.
<p>1.7 Knowledge has been transformative for the organizations.</p> <ul style="list-style-type: none"> change of practice or of policy 	<ul style="list-style-type: none"> This can often be assessed by collecting evidence of when knowledge has opened up new areas of inquiry, and how knowledge contributed to greater organization-level self-reflection and change of course (or more solid justification to remain on same course)

2) Culture	
Potential indicators	Benchmark & measurement considerations
<p>2.1 Organizational cultures encourage learning, creativity and innovation by supporting new ideas. This would include sub-indicators such as:</p> <ul style="list-style-type: none"> • Evidence that new ideas are regularly presented at various levels in organizations • Resources allocated to supporting/testing new ideas or ways of doing things • Tolerance/acceptance of mistakes or failed initiatives • Encouragement of counter-opinions and questioning of rules/status-quo 	<ul style="list-style-type: none"> • Given that these indicators are based on climate and culture, the information that will need to be collected to assess these are most likely to be participants' perceptions and observations.
<p>2.2 Diversity of individuals on teams according to:</p> <ul style="list-style-type: none"> • Areas of expertise • Background experience • Training • Qualifications and credentials 	<ul style="list-style-type: none"> • Diversity may encourage learning on a group level (McCarthy & Garavan, 2008). The differing knowledge, backgrounds and perceptions of a diverse team will contribute to a more comprehensive understanding of issues and problems, and will more likely come up with creative, innovative solutions. • Organizations should be wary of group-think (Esner, 1998) by which there is a phenomenon of yes-saying without critical assessment (linked to overly homogeneous groups, too strong group identity, and intolerance to diversity of opinions)
<p>2.3 Diversity of teams and organizations according to:</p> <ul style="list-style-type: none"> • Mandates • Clientele • Areas of expertise 	<ul style="list-style-type: none"> • <i>Similar reasoning and considerations for indicator 2.2 above</i>

3) Support	
Potential indicators	Benchmark & measurement considerations
<p>3.1 Tangible resources are allocated to collective learning (<i>not just training</i>). These would include:</p> <ul style="list-style-type: none"> • Time • Funding • Equipment & Tools • Expertise • Allocated personnel 	<ul style="list-style-type: none"> • Tangible support for collective learning initiatives should be evident. This goes beyond individual training budgets, and should be expanded to initiatives such as knowledge/information sharing systems, evaluations, developing lessons learned, etc.
<p>3.2 Both external and internal training opportunities are available and supported</p> <ul style="list-style-type: none"> • in-house training • access to outside resources (books, courses, consultants) 	<ul style="list-style-type: none"> • Knowledge acquisition is important for collective learning. Often this can be achieved through training, both internal and external. Training also often contributes to the knowledge dissemination and interpretation.
<p>3.3 Cross-training across teams and/or organizations is encouraged and supported</p> <ul style="list-style-type: none"> • outside training in mixed groups • meetings across organizations 	<ul style="list-style-type: none"> • Collective learning may be achieved more efficiently and effectively if training across groups and organizations is employed. This will enhance knowledge sharing, dissemination and interpretation at the collective level. This may be considered a form of “boundary spanning” (<i>see indicator 4.2</i>).

4) Leadership & Management	
Potential indicators	Benchmark & measurement considerations
<p>4.1 Leaders emphasize the importance of knowledge rather than title in relating to one another</p> <ul style="list-style-type: none"> • all can participate in discussion and ask questions • praise for questioning rather than reprisal • interactions follow need and not hierarchy 	<ul style="list-style-type: none"> • Collective learning is more effective when the emphasis is placed on knowledge rather than status or title. This is congruent with the concept that new ideas and innovation come throughout the organization, not necessarily only from the top. • The information that will need to be collected to assess this will most likely be participants' perceptions and observations.
<p>4.2 Leaders engage in and encourage collaboration outside the team or organization (boundary spanning)</p> <ul style="list-style-type: none"> • allowed to seek out information 	<ul style="list-style-type: none"> • Referred to as "boundary spanning" in the literature (Burke et al. 2006), it is considered particularly important in learning organizations. This spanning involves collaboration with others outside the regular team or organization and scanning the environment.
<p>4.3 Leaders encourage novelty and innovation.</p>	<ul style="list-style-type: none"> • This could be assessed by determining the extent to which leaders are able to create and sustain environments where new ideas are expressed and followed up on. In part this will be derived from the leader her or himself modeling the appropriate encouragement and nurturing of ideas. • The information that will need to be collected to assess this will most likely be participants' perceptions and observations.
<p>4.4 Leaders and managers possess the five main competencies of:</p> <ul style="list-style-type: none"> • personal mastery • insight into mental models • building shared vision • team learning • systems thinking 	<ul style="list-style-type: none"> • According to the literature, collective learning is most likely to occur when leaders and managers in organizations demonstrate this set of competencies.

5.0 Summary and Conclusions

This focused overview of the literature on collective learning presents definitions of collective learning along with related concepts such as collective memory, learning organizations, and communities of practice. Considerations are provided for examining collective learning within a multi-organizational context such as federal horizontal initiatives. Best practices as identified in the literature are documented. These are then transformed into potential indicators of collective learning within a multi-organization environment.

This report will be useful for groups attempting to assess the extent to which collective learning has or will likely occur within initiatives involving multiple organizations working on common goals.

References

- Argyris, C., & Schon, D. (1978). *Organisational Learning: A Theory of Action Perspective*. Reading, MA: Addison-Wesley.
- Argyris, C. (1977). Organizational learning and management information systems. *Accounting, Organizations and Society*, 2, 113-123.
- Barrette, J., Lemyre, L., Corneil, W., & Beauregard, N. (2007). Organizational learning among senior public-service executives: An empirical investigation of culture, decisional latitude and supportive communication. *Canadian Public Administration*, 50, 333-354.
- Barrette, J., Lemyre, L., Corneil, W., & Beauregard, N. (submitted). Measuring organizational learning: Dimensions of the organizational learning questionnaire in the public sector. *Management Learning Journal*.
- Beauregard, N., Lemyre, L., Legault, L., Corneil, W., & Barrette, J. (submitted). Healthy learning practices in public sector executives: A Canadian case study. *Manuscript submitted for publication*.
- Brown, J. S., & Duguid, P. (2001). Knowledge and organization: A social-practice perspective. *Organization Science*, 12, 198-213.
- Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *Leadership Quarterly*, 17, 288-307.
- Connerton, P. (2008). Seven types of forgetting. *Memory Studies*, 1, 59-71.
- Cook, S. D. N., & Yanow, D. (1993). Culture and organizational learning. *Journal of Management Inquiry*, 2, 373-390.
- Cox, A. (2005). What are communities of practice? A comparative review of four seminal works. *Journal of Information Science*, 31, 527-540.
- DiBella, A. J., Nevis, E. C., & Gould, J. M. (1996). Understanding organizational learning capability. *Journal of Management Studies*, 33, 361-379.
- Dodgson, M. (1993). Organizational learning: A review of some literatures. *Organization Studies*, 14, 375-394.
- Ellis, A. P. J., Hollenbeck, J. R., Ilgen, D. R., Porter, C. O. L. H., West, B. J., & Moon, H. (2003). Team learning: Collectively connecting the dots. *Journal of Applied Psychology*, 88, 821-835.
- Garavan, T. N., & McCarthy, A. (2008). Collective learning processes and human resource development. *Advances in Developing Human Resources*, 10, 451-471.

- Gubbins, C., & MacCurtain, S. (2008). Understanding the dynamics of collective learning: The role of trust and social capital. *Advances in Developing Human Resources, 10*, 578-599.
- Halliday, J., & Johnsson, M. (2010). A MacIntyrian perspective on organizational learning. *Management Learning, 41*, 37-51.
- Huber, G. P. (1991). Organizational learning: The contributing processes and the literatures. *Organization Science, 2*, 88-115.
- Katzenbach, J., & Smith, D. (1996). *The Wisdom of Teams*. Boston, MA: Harvard Business School Press.
- Kim, D. H. (1993). The link between individual and collective learning. *The Sloan Review, 34*, 37-50.
- Knight, L. (2002). Network learning: Exploring learning by interorganizational networks. *Human Relations, 55*, 427-454.
- Lei, D., Hitt, M. A., & Bettis, R. (1996). Dynamic core competences through meta-learning and strategic context. *Journal of Management, 22*, 549-569.
- Lipshitz, R., Popper, M., & Oz, S. (1996). Building learning organizations: The design and implementation of organizational learning mechanisms. *Journal of Applied Behavioral Science, 32*, 292-305.
- McCarthy, A., & Garavan, T. N. (2008). Team learning and metacognition: A neglected area of HRD research and practice. *Advances in Developing Human Resources, 10*, 509-524.
- McDermott, R. (1999). Learning across teams: The role of communities of practice in team organization. *Knowledge Management Review, 3*, 32-36.
- Misztal, B. A. (2010). Collective memory in a global age: Learning how and what to remember. *Current Sociology, 58*, 24-44.
- Senge, P., Ross, R., Smith, B., Roberts, C., & Kleiner, A. (1994). *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*. New York, NY: Bantam Doubleday Dell Publishing Group.
- Simon, H. A. (1991). Bounded rationality and organizational learning. *Organization Science, 2*, 125-134.
- van Woerkom, M., & van Engen, M. L. (2009). Learning from conflicts? The relations between task and relationship conflicts, team learning and team performance. *European Journal of Work and Organizational Psychology, 18*, 381-404.

Yen, J., Fan, X., Sun, S., Hanratty, T., & Dumer, J. (2006). Agents with shared mental models for enhancing team decision makings. *Decision Support Systems*, 41, 634-653.

Appendix A – Search Terms and Databases

The literature identification and retrieval process consisted of searching with the following terms within the databases and search engines listed below:

Search terms

- “Collective Learning”
- “Collective learning” + “best practices”
- “Collective learning” + “Literature Review”
- “Collective learning” + meta
- “Learning Organization”
- “Learning Organization” + “Literature Review”
- Collective + learning
- Organizational + learning
- Teams + learning + storytelling

Databases

- Blackwell Publishing
- Emerald FullText
- Google
- Google Scholar
- informaworld
- IngentaConnect
- JSTOR
- Pro-Quest
- PubMed
- SAGE
- Science Direct
- University of Ottawa Library Catalogue
- Wiley-InterScience

DOCUMENT CONTROL DATA UNCLASSIFIED		
1. ORIGINATOR Faculty of Social Science Institute of Population Health University of Ottawa K1N 6N5		2. SECURITY CLASSIFICATION UNCLASSIFIED
3. TITLE Literature Review on Best Practices in Collective Learning		
4. AUTHORS Lemyre, Louise; Pinsent, Celine, Johnson, Colleen; and Boutette, Paul		
5. DATE OF PUBLICATION November 2010	6a. NO. OF PAGES 18	6b. NO. OF REFS 29
7. DESCRIPTIVE NOTES Contractor Report		
8. SPONSORING ACTIVITY) Defence R&D Canada – Centre for Security Science 222 Nepean Street Ottawa, Ontario K1A 0K2		
9a. PROJECT OR GRANT NO. 3782-2010-33BO10(AER)	9b. CONTRACT NO.	
10a. ORIGINATOR'S DOCUMENT DRDC CSS CR 2010-11	10b. OTHER DOCUMENT NO(s).	
11. DOCUMENT AVAILABILITY Unlimited		
12. DOCUMENT ANNOUNCEMENT Unlimited		
13. ABSTRACT This focused overview of the literature on collective learning presents definitions of collective learning along with related concepts such as collective memory, learning organizations, and communities of practice. Considerations are provided for examining collective learning within a multi-organizational context such as federal horizontal initiatives. Best practices as identified in the literature are documented. These are then transformed into potential indicators of collective learning within a multi-organization environment. This report will be useful for groups attempting to assess the extent to which collective learning has or will likely occur within initiatives involving multiple organizations working on common goals. Dans le présent aperçu des documents axés sur l'apprentissage collectif, définit cette expression ainsi que les concepts connexes dont la mémoire collective, les organisations apprenantes et les communautés de pratiques. On énumère des éléments à considérer au moment d'examiner l'apprentissage collectif dans un contexte multi-organisationnel, notamment les initiatives horizontales fédérales. Les pratiques exemplaires décrites dans les publications sont documentées. Elles sont ensuite transformées en indicateurs potentiels de l'apprentissage collectif dans un environnement multi-organisation. Ce rapport sera utile pour les groupes qui tentent d'évaluer dans laquelle mesure il y a ou aura un apprentissage collectif dans le cadre d'initiatives touchant de multiples organisations qui travaillent dans un seul et même but.		
14. KEYWORDS, DESCRIPTORS or IDENTIFIERS Organizational Learning; Collective Learning; Learning Organizations		

